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ABSTRACT

This study examines the relative influence of certain variables on teachers' level of aspiration toward positions in educational administration and attempts to isolate factors contributing to the scarcity of women in this profession. Data for the study were gathered from questionnaires completed by 342 male and female elementary and secondary teachers from four New England school systems. In addition to certain personal information, data were obtained on measures of role preference, projected time commitment to a career, commitment to teaching, expectancy of professional support, perceived likelihood of recruitment, self-role congruence, achievement motivation, and aspiration level toward administration. Findings of the study indicate that although the percentage of female teachers with administrative aspirations is much lower than for male teachers, a much greater percentage of women aspire to those roles than is indicated by their representation in the profession. (Author/JG)

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THE ASPIRATION LEVELS OF WOMEN FOR ADMINISTRATIVE CAREERS IN EDUCATION: PREDICTIVE FACTORS AND IMPLICATIONS FOR EFFECTING CHANGE

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The Aspiration Levels of Women for Administrative Careers in Education: Predictive Factors and Implications for Effecting Change

by Sally L. Dias

INTRODUCTION

Data on the distribution of men and women within the U. S. educational profession in 1973/1974 reported by Fischel and Pottker (1974) indicate the following:

Classroom Teachers

	Elementary School	Secondary School
Women	84%	46%
Men	16%	54%

Principals

	Elementary School	Secondary School
Women	19.6%	2.0%
Men	80.4%	98.0%

Central Office Administrators

	Superintendent	Associate Superintendent	Assistant Superintendent
Women	0.1%	6.2%	5.3%
Men	99.9%	93.8%	94.7%

The scarcity of women in the educational administration profession, attested to by the statistics presented above, is most often attributed in the literature and in practice to lack of aspiration. An investigation

of this assumption and insight into the factors which contribute to this phenomenon, if true, appears necessary to the design of any strategy aimed at remediation.

The study reported here was an attempt to examine the relative influence of selected variables in predicting level of aspiration toward educational administration among both women and men teachers.

THEORETICAL FRAMEWORK

Research Related to the Scarcity of Women in Administration

A knowledge of the factors which contribute to the low representation of women in educational administration could provide the profession with a theoretical base from which to initiate change. Several factors have been previously proposed and researched: women are less capable administrators than men; school systems employ discriminatory practices in their hiring procedures; women are not motivated to undertake advanced study for or to seek administrative positions; there is a lack of support or encouragement by present administrators of women to enter the field of administration.

Several studies speak to the first proposition. Research conducted by Hemphill, Griffiths, and Frederiksen (1962) comparing the administrative performance of 137 men and 95 women principals, indicates that:

> the difference between men and women on in-basket problems is that the women involved teachers, superiors, and outsiders in their work, while men tended to make final decisions and take action without involving others... The evidence appears to favor women if the job of the principal is conceived in a way that values working with teachers and outsiders; being concerned with objectives of teaching, pupil participation, and the evaluation of learning; having knowledge of teaching methods and techniques; and gaining positive reactions from teachers and superiors.

A similar finding was reported by Wiles and Grobman (1955). They concluded that in their sample "women rank significantly ahead of men as democratic principals." A doctoral study by Newell (1960) found that women principals exhibited "a greater awareness for the cognitive factor of the learning process." Another study conducted by Hoyle (1969) on the variables of 1) problem recognition, 2) problem analysis, 3) group participation, 4) administrator action, and 5) administrator evaluation, found that "teachers described female administrators as noticing potential problem situations (variable 1) and as reviewing results of action (variable 5) significantly more often than did male administrators. On other variables, differences were not significant." On the secondary level, a research project conducted by Morsink (1969), designed to test perceptions by faculty members of principal behavior, reported no statistically significant differences between men and women principals on two dimensions of leader behavior, tolerance of uncertainty and consideration. Men principals were perceived more often (at the .01 level of significance) to have a greater tolerance for freedom. At the .01 level of significance, women principals were perceived more often to be representative of the group, persuasive, and able to initiate structure, as well as demonstrating more predictive accuracy, production emphasis, integration, and superior orientation. Women principals were rated in the reconciliation dimension higher than men at the .05 level of significance.

The research cited seems to indicate that men and women demonstrate different leadership styles and, unless appropriate leadership is defined very narrowly, there is no reason to believe that men make more capable administrators than women.

Although these studies were conducted on the leadership quality and administrative abilities of the principal, it is not unreasonable to assume that the findings would be applicable to central office administrators as well.

The factors dealing with possible discrimination in hiring and lack of aspiration among women were studied and reported on by Burns (1964). She concluded that:

> ...the decline in the assignment of women to leadership positions in California public schools would continue. Evidently opportunity for leadership placement exists but not the motivation on the part of the women themselves to continue graduate study and to assume the responsibility of leadership assignments.

Another study conducted by Parlato (1966) reported similar results. Her research conducted on women in elementary education in Detroit indicates a lack of educational and occupational aspiration among the sample studied. In addition, Barter (1959) concludes from her studies that "the apathetic attitude of women teachers toward administrative appointments emerges as a key factor in their present status within the profession."

Another possible factor could be lack of support or encouragement by present administrators of women to enter the field of administration. Research by Taylor (1971) supports this factor. She reports that women are not encouraged to take on administrative roles in approximately one half of the 107 school districts studied. This, however, is a most complicated issue. Do women not aspire to administration because of lack of encouragement and expectations on the part of administrators, or do administrators hold low expectation levels and withhold encouragement from women to enter administration because of perceived lack of aspiration on the part of women teachers? The answer to this question is invariably linked to societal expectations and perceptions of a woman's role, and, whatever the reason, it

appears that lack of aspiration is one factor which contributes to the low representation of women in educational administration. Any remedy of this situation will be contingent upon insight into the factors which relate to this phenomenon.

Research Related to Proposed Influential Factors

Role Preference and Projection of Future Time Commitment to a Career

Simpson and Simpson (1969) suggest that one of the factors contributing to low career orientation and aspiration in women can be defined as role preference. They state:

> The culture defines woman's responsibility to home and family as her primary one. When home and work obligations conflict, the home has to take precedence. Women's self-images are built chiefly around their family roles, whereas men's are conditioned more by occupational roles.

It was hypothesized from the Simpsons' article that males would show a greater preference for career roles and project a greater time commitment than would females and that these factors influence aspirations toward administration for both women and men. One of the several studies which are relevant to and support this hypothesis was conducted by Shepherd (1971) and concluded that the majority of married women teachers "saw their work role as subsidiary to their domestic role, with the domestic demands being accorded first priority." Insight into this phenomenon is provided by Epstein (1970):

> The emphasis on being a wife first and foremost has many consequences for the girl's behavior at all stages of development and at all points in her preparation for a career when a decision must be made...Girls do not seem to be encouraged to make their work part of their identity.

Self-Role Congruence

Another factor is suggested by Super in Career Development: Self Concept Theory (1963). He states:

> In expressing a vocational preference, a person puts into occupational terminology his idea of the kind of person he is; that, in entering an occupation, he seeks to implement a concept of himself; that, in getting established in an occupation, he achieves self-actualization. The occupation makes possible the playing of a role appropriate to the self concept.

Self-Role Congruence. Lack of congruence between perceptions of the self and role requirements indicate according to Sarbin and Allen (1968) "that a person is not well suited to a particular job, that the job does not fit his personality... Conversely, "congruence of self and role ... leads to more convincing and effective role enactment." An example of the effects of self-role congruence on behavior is given by Sarbin and Allen in discussing a research study by Milton. Given the premises that "males have been found consistently to excel females in formal problem-solving skill" and that "problem solving is a rational, logical process which is part of the male sex role in our culture," Milton hypothesizes that "inadequacy of females in problem solving may be due to incongruence between the male sex role, which is related to problem solving, and women's self conceptions of themselves as feminine." The hypothesis was confirmed. "Differences between male and female scores in problem solving decreased significantly when the problems were presented with content appropriate to the subjects' respective sex roles."

It seemed to follow then that congruency between self concept and the concept of the role of the educational administrator (self-role congruence) would influence an individual's aspiration level toward administration.

A subpart of this congruency which, for purposes of this study, was important to isolate was the congruency or discrepancy between the concepts of self and educational administrator on factors exhibiting a sex-role orientation (level of sex-role conflict). It was, therefore, another purpose of this study to determine the extent to which self-role congruency, including the level of sex-role conflict, influences aspiration level toward administration for both men and women teachers.

It was hypothesized that men would show higher levels of self-role congruence and lower levels of sex-role conflict for the following reasons. Career choices such as science, administration, engineering, law, medicine, and college teaching are considered to be more consistent with the masculine role because they are "believed to require qualities of coolness, detachment, analytic objectivity, and object orientation", according to Epstein. Women most often choose careers in an area believed to "involve tasks judged to be 'expressive' and person-oriented - helping, nurturing, and empathizing", such as social work, nursing, teaching, home economics, library science, secretarial work, etc.

Veroff, Wilcox, and Atkinson (1953) in studying motivation have found that "women, unlike men, fail to show an increase in their achievement imagery score when they are exposed to experimental conditions that arouse achievement motivation by stressing intelligence and leadership ability." Horner (1970) explains this phenomenon in terms of "the motive to avoid success." She states:

> This 'fear of success' receives its impetus from the expectancy held by women that success in achievement situations will be followed by negative consequences, including social rejection and the sense of losing one's femininity.

If indeed the role concept of educational administration encompasses more qualities considered appropriate for males, then women would be expected to show lower levels of self-role congruence and higher levels of sex-role conflict.

Expectancy of Professional Support and Perceived Likelihood of Recruitment

According to Rotter (1964), a contributor to the prediction of motivated behavior is the psychological situation or those "cues which tell the individual what behaviors he may expect will be followed by what reinforcements." This set of expectancies has a definite influence on the direction and strength of the motivated behavior.

Taylor (1971) in discussing her research results states that: "Half of the school systems studied did not encourage women to train or apply for administrative positions." It seemed likely that this lack of support and encouragement, whatever its causes, would produce a resultant lowering of expectancy among women for professional support in the acquisition of an administrative position or for recruitment into the profession. It was hypothesized, therefore, that males would exhibit higher expectations for support and recruitment than would females. Not only is there evidence for lack of encouragement for women but the scarcity of female role models in administration would tend to support a prediction of lower expectancies among female teachers.

General Achievement Motivation and Commitment to Teaching

An additional factor which could influence the level of aspiration toward administration is the teacher's general achievement motivational

level. According to Heckhausen (1967), "success-motivated persons have a higher level of aspiration than do failure-motivated persons." Similarly, Atkinson and Feather (1966) see aspiration level as an expression of an individual's achievement motivation:

> ... a person's motive to achieve (n Achievement), his motive to avoid failure, and his expectation of success in some venture strongly influence the character of his motivation as it is expressed in level of aspiration, preference for risk, willingness to put forth effort and to persist in an activity.

In applying these principles and those of achievement theory to careers, Raynor (1974) states:

> ... the nature of career activity is such that many (but not all) career paths provide a situation offering all of the incentives that have thus far been identified as sources of motivation for achievement-oriented activity, whether excitatory or inhibitory in action implications.

Since the only career path in public school education is through the administrative ranks, one would expect some relationship between achievement motivation and level of aspiration toward an administrative career. A low level of aspiration might simply be reflecting a lack of motivation to achieve. In addition, an intense commitment to teaching could result in lack of interest in administrative positions. Another purpose of this study was, therefore, to determine the extent to which general achievement motivation and commitment to teaching influence aspiration toward administration for both men and women teachers.

One of the most persistent problems in achievement motivation has been the unexplained differences between male and female subjects. As reported by Horner (1968), females have consistently failed "to show the expected increase in thematic apperceptive $\overline{n}$ achievement imagery when exposed to experimental conditions of achievement motivation stressing 'intelligence

and leadership' ability." However, under neutral testing conditions, females score "as high and sometimes higher" than men under achievement motivation arousal conditions. Attempts to explain these differences have often centered on the proposed understanding by males and females of their societal roles. However, Horner (1968) reports that:

> efforts to explain female responses on the TAT $\bar{n}$ achievement measure or to account for the lack of a motivation-performance relationship in female data in terms of differential perception of their social role among the subjects is at best premature.

Horner suggests and presents extensive experimental evidence in support of the existence of an additional motivational factor, particularly significant for women, the tendency to avoid success.

Measurement of the motive to avoid success, assessed by scoring responses to verbal leads for Fear of Success Imagery, provided the following results reported by Horner (1968):

> ... women show significantly more evidence of Fear of Success Imagery than do the men ($p < .0005$). ... Honors women show more evidence of Fear of Success Imagery than Non-Honors women ($p < .10$). ... those showing evidence of Fear of Success perform better when working in a non-competitive setting... than when working in a mixed sex competitive setting against others ($p < .005$).

The significance of the motive to avoid success among women is obvious. The causal antecedents to this behavior are not as clear. McClelland (1965) states that "all motives are learned" and result from "clusters of expectancies or associations" which "grow up around affective experiences." Whatever the causes, sex differences in both achievement motivation and performance exist, and the evidence seems to indicate that the motive to avoid success is a significant contributor to this difference.

Achievement motivation (in this study) was measured under neutral testing conditions and, therefore, no differences between males and females

were expected. However, the motive to avoid success was expected to be a factor in the reported level of aspiration toward administration among women, since this would be an expression of motivation to achieve in a male-oriented and competitive profession.

In addition, it was expected that achievement motivation would be a more influential predictor of aspiration level toward administration for males than for females. Again, this would be due to the intervention of the motive to avoid success in a "masculine profession."

Raynor (1974) contends that:

> Career striving provides a potent situational inducement for the arousal of the tendency to avoid success in women, primarily because interpersonal competition in career activity of our culture is most often against men in masculine standards of performance and successful competition often takes on agressive achievement-related overtones. The achievement-oriented "career woman" who is also high in fear of success should face a conflict between achievement of the long-term extrinsic and achievement-related incentives contingent upon career success on the one hand and the loss of her conception of "femininity" and fear of consequent social rejection by males due to her very success on the other.

Because teaching is viewed as an appropriate female "career," it was hypothesized that women teachers would express greater levels of commitment to teaching as a long-term career. It was also hypothesized that both extremely low and extremely high commitments to teaching would be predictive of low aspiration toward administration. Teachers low in commitment to teaching could be expressing disinterest in the field of education. Teachers high in commitment to teaching might simply not be interested in the administrative role. Therefore a curvilinear relationship between commitment to teaching and aspiration level was tested for.

Personal Variables

As a secondary purpose, the effects of such personal variables as

position in family (firstborn, etc.), children (or future plans for children), marital status or future marital expectations, level of teaching assignment, years experience, education beyond the Bachelor's and future educational plans, were studied for their relationship to the level of aspiration toward administration. The justifications for including these variables are indicated by the following studies and reasoning.

In her research of career development, Hennig (1970) found that 100% of her sample comprised of successful women executives came from one of the following situations: only child or eldest in an all-girl family. It seemed appropriate then to determine whether position in family or family makeup relates to any great extent to aspirations for an administrative career.

Cook (1967), studying role aspirations of senior women, found that "marital status was the factor which determined most significantly the career or homemaking expectation of seniors." Fogarty, Rapoport, and Rapoport (1971), studying 1960 university graduates, report similar findings and, in addition, their research indicates:

> There is a discernible relationship between social role and level of aspiration. As women proceed from school to university to subsequent life following graduation, their level of occupational aspirations drops. The level of aspiration of married women, particularly those with children, falls more sharply than that of the single women.

Therefore, marital status, future marital expectations, number of children, and future plans for children were analyzed for their relationship to aspirations for administration.

Since there is a greater percentage of women principals at the elementary level, it was of interest to determine whether level of teaching is a factor related to aspirations toward administration.

It was suggested by Burns (1964) that a reason why so few women were educational administrators was their unwillingness to continue graduate study. Therefore, the variables, education beyond the Bachelor's and educational plans, were assessed for their relationship to aspiration level for administration.

The variable (years of experience) was also tested for any relationship to aspiration level to determine whether time spent in the field of education significantly altered aspirations.

THE STUDY

The Problem

The study was designed to examine the relative influence of certain variables -- role preference, time commitment to career, commitment to teaching, expectancy of support, perceived likelihood of recruitment, achievement motivation, self-role congruence, personal data items -- on predicting the level of aspiration toward educational administration, for the purpose of isolating factors contributing to the scarcity of women in this profession.

Research Questions and Null Hypotheses

The main research questions with corresponding null hypotheses were as follows:

1. Is there any relationship between the sex of the teachers or between any of the other predictor variables studied and their level of aspiration toward administration?

   H_1: There is no significant difference in level of aspiration toward administration attributable to the male-female variable or to any other predictor variable.

2. Are the predictor variables equally effective in influencing aspiration level toward administration for female teachers and for male teachers?

   H_2: There is no significant difference among the predictor variables in influencing the level of aspiration toward administration

3. Are there any interaction effects between general achievement motivation and the predictor variables -- role preference, time commitment to career, commitment to teaching, expectancy of support, perceived likelihood of recruitment -- on the level of aspiration toward administration for male and female teachers?

   H_3: There is no significant difference in level of aspiration toward administration for male and female teachers attributable to the interaction between general achievement motivation and the predictor variables -- role preference, time commitment to career, commitment to teaching, expectancy of support, perceived likelihood of recruitment.

4. Is there any curvilinear relationship between commitment to teaching and aspiration level toward administration?

   H_4: There is no significant difference in aspiration level toward administration attributable to the second power of the scores on the commitment to teaching (CT) predictor variable.

5. Is there any relationship between the sex or teaching level of the teachers studied and any of the predictor variables significantly correlated with aspiration level?

   H_5: There is no significant difference between males and females or between elementary and secondary teachers on any of the predictor variables significantly correlated (p .05) with aspiration level.

Selection of Sample and Collection of Data

Male and female teachers with from two to six years of elementary or secondary teaching experience were solicited for the study from four New England school systems. The participating systems can be described as follows: city with population just under 100,000; suburban community with population around 20,000; rural suburban community with population of 15,000; rural suburban community with population of about 10,000.

Presentations were made at all 41 participating schools. The study was explained as being concerned with certain attitudes, perceptions, and characteristics of teachers in their second through sixth year of experience, the interrelationships of these variables, and the correlation of these variables with future plans. Teachers, schools and systems were guaranteed anonymity and the offer was made to share the results with any interested individuals. Questionnaires were distributed to all teachers in the relevant experience range. However, since participation was voluntary, teachers were asked to return the form blank if their decision was not to participate. At six of the elementary schools and at one of the secondary schools, the questionnaires were completed and returned by participants at the time of presentation. At all other schools, the questionnaires were left with the teachers to be returned in sealed envelopes to the school secretary and picked up by the researcher.

Table 1 presents the breakdown by level of numbers of questionnaires distributed, completed, and returned. Table 2 summarizes the sample by level and sex.

Table 1

Distribution and Completion of Questionnaires by Level

	Number of Questionnaires Distributed	Number of Questionnaires Returned	Number of Questionnaires Completed	% Completion
Elementary Schools	226	207	200	88%
Secondary Schools	188	159	142	76%

Table 2

Sample Breakdown by Level and Sex

	Elementary	Secondary	Total
Males	18	61	79
Females	182	81	263
Total	200	142	N = 342

Instrumentation

Personal Data Questionnaire

A questionnaire was administered to ascertain the personal data items to be used as predictor variables: sex, marital status, number of children or future plans for children, position in family, level of teaching assignment, years of experience, educational attainment, future educational plans.

Role Preference and Time Commitment to Career Measures

Measuring role preference or career-orientation has previously been conducted mainly on female populations. As stated by Schissel (1968): "all men may safely be assumed to be career-oriented...differentiation among career categories for women is clouded by the basic uncertainty of whether or not there is a career orientation in the first place." However, this was not assumed and the attempt was made to place all teacher participants somewhere on the continuum between strong career orientation and strong home-family orientation. The instrument used to measure role preference (RP) was an adaptation of a career-homemaking scale devised by Cook (1967). A similar question was constructed and posed to determine the subject's estimate of future time commitment to career and career related activities (TCC).

Both role preference (RP) and time commitment to career (TCC) measures are one-item direct questions. Their validity was assumed on the basis of face validity. Reliability measures for both items (combined with other items for analysis) were completed on a teacher sample. For an average test-retest time differential of three weeks, the retest coefficient of correlation (a measure of stability) for RP with an N = 40 was 0.92 and for TCC with an N = 38 was 0.88.

Measures of Commitment to Teaching, Aspiration Level for Administration, Expectancy of Support, and Perceived Likelihood of Recruitment

Measures of commitment to teaching (CT), aspiration level for administration (AL), expectancy of support (ES), and perceived likelihood of recruitment (LR) are one-item direct questions with subjects rating themselves on a 7-point scale. Their validity was assumed on the basis of face validity and reliability measures were conducted on a teacher sample for all measures (combined with other items for analysis.) The retest coefficient of correlation for an average test-retest time differential of three weeks, for CT with an N = 43 was 0.85, for AL with an N = 95 was 0.88, for ES with an N = 92 was 0.68, and for LR with an N = 28 was 0.78.

Semantic Differential

The sematic differential technique was utilized to measure self concept, concept of the role of the educational administrator, and differences between the concepts "MYSELF" and "EDUCATIONAL ADMINISTRATOR" (role congruence.) The bipolar adjective pairs used in the initial prestudy to evaluate the self-concept and concept of the role of the educational administrator were a combination of those used by Friedman and Gladden (1969) in measuring social role concepts and those used by Reece (1964) in measuring masculinity and femininity as well as those thought to be relevant to the concepts being judged.

Each adjective pair was evaluated on a seven-point scale as recommended by Osgood et al (1957). The order of the pairs as well as reversals of the pairs (using "weak - strong" instead of "strong - weak") was chosen randomly. Reversals were used in order to counteract tendencies to respond similarly each time.

The initial prestudy (55 word pairs per concept) was completed with a teacher sample of 53 subjects. A final prestudy conducted on 148 teachers utilized a version of this original instrument from which variables had been dropped. The collapsing process was accomplished by successively eliminating variables forming one or two-item factors.

Three factors were obtained on each concept: potency, social behavior, and human relations behavior. These factors are essentially the same for both concepts with only minor variations in content and loadings. Contrary to Osgood's findings, no evaluative or activity factor was noted. The factor structure of the first two factors was similar to that reported by Reece (1964) in his study of masculinity and femininity. The factors were derived utilizing the Varimax method of factor analysis which provides an orthogonal rotation and factor solution.

Osgood et al report that:

> Throughout our work with the semantic differential, we have found no reasons to question the validity of the instrument on the basis of its correspondence with the results to be expected from connon sense.

The validity of this instrument need not be assumed, however. Both factor strength and factor stability are indications of the validity of the semantic differential. The strength of the factors is clear from both the initial and final prestudy and the final data as is the stability of the factors with different sample populations. Essentially the same factors were derived for both concepts in both the prestudy and final data analysis.

The reliability of the instrument is attested to by the relatively high internal consistency coefficients obtained from the prestudy data (0.74 for concept "MYSELF" and 0.82 for concept "EDUCATIONAL ADMINISTRATOR") and from the final data (0.89 for concept "MYSELF" and 0.96 for concept

"EDUCATIONAL ADMINISTRATOR"). The internal consistency coefficient provides an estimate of the degree to which scores on each factor mean the same thing for different subjects, thus a measure of the reliability of the factor scores. Measurement theory indicates that, with high internal consistency coefficients (such as thoseobtained), there is a high probability that the instrument would also exhibit a high degree of stability over time.

Factor scores were derived for the three factors (potency, social behavior, human relations behavior) on both concepts, "MYSELF" and "EDUCATIONAL ADMINISTRATOR" for the final data only. In addition, the differences between the factors on the two concepts were calculated, providing a potency factor difference score, a social behavior factor difference score, and a human relations factor difference score (measures of role congruence). The reliability of the factor difference scores was calculated, using the internal consistency scores as measures of factor reliability ($r = .89$ for the three factors on concept "MYSELF" and $r = .96$ for the three factors on concept "EDUCATIONAL ADMINISTRATOR") and the following product moment correlations between factor scores: $r = -.01$ between potency factor score on first concept and that on second concept; $r = .29$ between social behavior factor score on first concept and that on second concept; $r = .10$ between human relations behavior factor score on first concept and that on second concept. The resultant reliability coefficients for the differences were as follows: $r_{diff} = .92$ for the potency difference score; $r_{diff} = .89$ for the social behavior difference score; $r_{diff} = .92$ for the human relations behavior difference score. These reliability coefficients are extremely high for difference scores due to the high internal consistency coefficients and the low intercorrelations.

The semantic differential used in the final study involved 30 adjective pairs on each of the concepts, "MYSELF" and "EDUCATIONAL ADMINISTRATOR." Six

adjective pairs were dropped during the collapsing process and the factor structure derived and utilized in the calculation of the factor scores is presented in Tables 3 and 4. These final data produced the same factor structure as the prestudy data with only minor differences in content and loadings. The factors are reported in Tables 4 and 5 with word pair listings in decreasing order of strength of factor loading with only factor loadings above .40 reported for the first factor (potency), above .45 for the second factor (social behavior) and above .50 for the third factor (human relations behavior).

According to Child (1970), "as one progresses from the first factor to higher factors, the acceptable value for a loading to be judged significant should increase." The selection of .40, .45, and .50 as the criterion factor loading for the three factors is extremely conservative since values of .25, .26, and .27 would be considered significant at the .01 level.

The three factors in the final study accounted for 48% of the total variance on the first concept "MYSELF" and for 64% of the total variance on the second concept "EDUCATIONAL ADMINISTRATOR." The potency factor accounted for 19% of the variance on the first concept and for 24% on the second concept. The social behavior factor accounted for 15% of the variance on the first concept and for 17% on the second concept. The human relations behavior factor accounted for 14% of the variance on the first concept and for 23% on the second concept. The internal consistency coefficients for the final data were: 0.89 for the concept "MYSELF" and 0.96 for the concept "EDUCATIONAL ADMINISTRATOR."

Factor scores and factor difference scores were utilized in the linear regression model as predictor variables.

Table 3

CONCEPT 1 "MYSELF" FACTOR STRUCTURE WITH SIGNIFICANT LOADINGS

FACTOR 1 "POTENCY" word pairs	loadings ≥.40	FACTOR 2 "SOCIAL BEHAVIOR" word pairs	loadings ≥.45	FACTOR 3 "HUMAN RELATIONS BEHAVIOR" word pairs	loadings ≥.50
submissive-dominant	.76	rough-smooth	.78	detached-involved	.72
weak-strong	.74	coarse-fine	.77	indifferent-empathetic	.69
mild-forceful	.72	crude-refined	.77	unconcerned-concerned	.65
timid-bold	.69	undignified-dignified	.65	uninterested-interested	.61
fearful-fearless	.67	blunt-tactful	.57	unfeeling-compassionate	.60
helpless-powerful	.66	callous-considerate	.52	aloof-nurturant	.50
static-dynamic	.59	severe-gentle	.51	aimless-motivated	(.43)**
languid-vigorous	.52	rugged-delicate	.47		
*delicate-rugged	.48				
unimportant-important	.43				

*loaded significantly on more than one factor
**not above .50 but highest loading of this word pair on any factor of this concept

Table 4

CONCEPT 2 "EDUCATIONAL ADMINISTRATOR" FACTOR STRUCTURE WITH SIGNIFICANT LOADINGS

FACTOR 1 "HUMAN RELATIONS BEHAVIOR" word pairs	loadings ≥.40	FACTOR 2 "POTENCY" word pairs	loadings ≥.45	FACTOR 3 "SOCIAL BEHAVIOR" word pairs	loadings ≥.50
indifferent-empathetic	.82	timid-bold	.76	rough-smooth	.77
detached-involved	.81	helpless-powerful	.76	crude-refined	.77
uninterested-interested	.81	weak-strong	.75	coarse-fine	.69
unconcerned-concerned	.77	submissive-dominant	.75	undignified-dignified	.66
unfeeling-compassionate	.73	mild-forceful	.74	blunt-tactful	.66
aloof-nurturant	.71	fearful-fearless	.70	severe-gentle	.56
*callous-considerate	.71	*languid-vigorous	.68	*callous-considerate	.52
*languid-vigorous	.47	*static-dynamic	.63		
*static-dynamic	.47	delicate-rugged	.62		
		aimless-motivated	.60		
		unimportant-important	.51		

*loaded significantly on more than one factor

Mehrabian Achievement Scale

The Mehrabian Achievement Scale, an instrument constructed by Mehrabian (1968), consists of items (statements to be responded to using a nine-point scale ranging from very strong agreement to very strong disagreement) "designed to discriminate high versus low achievers." Mehrabian has worded the items "to relate to Atkinson's theory of achievement motivation and related data which indicate the behavioral dispositions that differentiate high versus low achievers." These behavioral dispositions for high achievers relative to low achievers are a more realistic aspiration level, a preference for intermediate risk, a more positive feeling aroused by success than negative feeling aroused by failure, less indulgence by parents during childhood, more independence in interpersonal relationships, less susceptibility to conformity pressures, better ability to delay gratification, a more distant future perspective, greater preference for achievement-related activities. The scales were designed to differentiate between "individuals whose motive to achieve is stronger than their motive to avoid failure" and "individuals whose motive to avoid failure is stronger than their motive to achieve," (Mehrabian, 1964). The instrument was used in this study to measure general achievement motivational level (MAG).

Mehrabian designed two separate scales, one for females and one for males. The differences in the items centered mainly on job-oriented items for males, cooking, party planning, etc., items for females. Since this study dealt with a population already involved in a career, it was considered desirable to utilize the male scale for both sexes. The items in the Mehrabian Achievement Scale for males were all relevant to both males and females.

The validity of the scale to be used is attested to by Mehrabian (1969). He found the scale to "correlate significantly with existing achievement and shy - venturesomeness scales and to be orthogonal to affiliation scales." It also exhibited a "satisfactorily low correlation with social desirability.

The reliability of the scale as measured by Mehrabian on a ten-week test-retest sample yielded a product-moment correlation of 0.73.

However, the validity and reliability data for the male scale were collected exclusively from males. Therefore, a further investigation was conducted to ascertain the applicability of these findings to a female sample.

Utilizing several of the scales Mehrabian employed in his convergent and discriminant analysis validity study, an attempt was made to replicate these findings on a new sample of females completing the Male Scale. The sample consisted of sophomore, junior, and senior undergraduate students taking courses in the Education Department of a small Women's Liberal Arts College. Mehrabian's data were also gathered using undergraduate students. The results are presented in Table 5.

Calculations of the Fischer's z reveal no significant differences between Sample III and Sample I or between Sample III and Sample II on any of the correlations. A significant negative correlation was found between the Mehrabian Achievement Scale for Males and the Neuroticism Scale for a sample of females. This was consistent with Mehrabian's data for males. No finding had been reported for females. In addition, a non-significant correlation between the Social Desirability Scale and the Male Scale was found for females. This finding of orthogonality between achievement motivation and social desirability was hypothesized by Mehrabian but not completely supported by his data.

Table 5

Product Moment Correlations with Mehrabian's Achievement Scale

	I Mehrabian's Data Male Sample on Male Scale N = 114 (.19 significant at .05 level)	II Mehrabian's Data Female Sample on Female Scale N = 98 (.20 significant at .05 level)	III Dissertation Pre-Study Data Female Sample on Male Scale N = 42 (.30 significant at .05 level)
Cattell and Eber's Shy Venturesome Scale	.56**	.34**	.44**
Jackson Achievement Motivation Scale	.62**	.37**	.51**
Eysenck and Eysenck Neuroticism Scale	-.40**	—	-.41**
Crowne and Marlowe Social Desirability Scale	.24*	.34**	.24

*significant at .05 level
**significant at .01 level

It can be concluded from this analysis that the Mehrabian Achievement Male Scale is as valid, if not more valid, an instrument for females than is the Female Scale. The tendency of researchers to devise separate scales for males and females for the measurement of personality and cognitive attributes should be brought into serious question.

Additionally, a test-retest reliability coefficient of 0.81 was obtained from the female sample (N = 36) with a two-week time differential between testings.

Statistical Procedures and Results

The variable of prime concern in this study was level of aspiration toward administration. It was not a purpose of the study to determine causal factors of this variable (such as parental warmth and expectations, socialization patterns, etc.) but to suggest related factors and determine their influence on aspiration level. The statistical technique used to analyze these relationships was multiple regression analysis. According to Cooley and Lohnes (1962), this technique "provides analysis of the relations among a single criterion measure and two or more predictor measures," a result of which is "an equation for predicting the unknown criterion score of a new subject from his known set of predictor scores."

The form for the equation before interactions were included, or variables were excluded after being tested against the unit vector, was:

$$X_1 = a_0 u + a_2 X_2 + a_3 X_3 + \ldots\ldots\ldots\ldots\ldots a_{42} X_{42} + E_0$$

The method of multiple regression and the computer program model utilized in this study is that outlined by Ward and Jennings in Introduction to Linear Models (1973). This program provided an important subroutine, DATRAN, which provided the capability to generate new vectors from the existing data and therefore to test for significant interaction effects as

well as for curvilinear relationships.

Testing Hypothesis 1

To test the first null hypothesis, each variable was treated separately in a sub-hypothesis. For example, if the relationship between sex and aspiration level was of interest, the null sub-hypothesis to be tested was:

H_{1-1}: There is no significant difference in aspiration level toward administration attributable to the male-female variable.

To test H_{1-1} it was necessary to take knowledge of the sex of the subject (the vector X_2) out of the regression equation $X_1 = a_0U + a_1X_2 + E_1$ and assess its effect on prediction. The restricted model was: $X_1 = b_0U + E_2$ where E_2 is the new error term. The sex vector (as well as all other predictor variables) was tested against the unit vector rather than against a model containing other predictors because it was of interest to first determine individual influence. A variable highly correlated with the criterion variable can, in a regression equation, be a non-significant predictor if other variables are included which are highly correlated with that predictor and therefore account for the same variance. The F ratio tested is a function of the error terms. Significance was set at the .05 level and all variables demonstrating a probability less than .05 were included in a linear regression model to determine the most predictive variables.

The null hypothesis was rejected for all variables with $p < .05$ in Table 6, indicating that knowledge of these variables was significant to the prediction of aspiration level. The type or direction of influence for these predictors on the criterion can be determined by examination of the correlation matrix for the total sample. (Table 7)

Table 6

Significance of Variables in Predicting Aspiration Level When Tested Against the Unit Vector

Variable	Vector Nos.	F-Statistic	Df1	Df2	Probability
Sex	X_2	51.83	1	340	.00*
Marital status	$X_3 - X_6$	0.68	4	337	.61
Children or future plans for children	$X_7 - X_{10}$	2.82	4	337	.02*
Position in family	$X_{11} - X_{13}$	0.29	3	338	.83
Level of teaching assignment	$X_{14} - X_{15}$	3.49	2	339	.03*
School system	$X_{16} - X_{18}$	0.49	3	338	.47
Educational attainment and future plans	$X_{19} - X_{26}$	25.39	8	333	.00*
Years of experience	X_{27}	1.75	1	340	.19
Role preference	X_{28}	38.16	1	340	.00*
Time commitment to career	X_{29}	32.75	1	340	.00*
Commitment to teaching	X_{30}	4.57	1	340	.03*
Expectancy of support	X_{31}	7.91	1	340	.00*
Perceived likelihood of recruitment	X_{32}	104.24	1	340	.00*
Achievement motivation	X_{33}	10.48	1	340	.00*

*significant at the .05 level or better

Table 6 (continued)

Variable	Vector Nos.	F-Statistic	Df1	Df2	Probability
Factor scores on concept "MYSELF"					
Potency	X_{34}	43.05	1	340	.00*
Social behavior	X_{35}	1.06	1	340	.30
Human relations behavior	X_{36}	1.64	1	340	.20
Factor scores on concept "ED. ADMIN."					
Potency	X_{37}	0.32	1	340	.57
Social behavior	X_{38}	1.86	1	340	.17
Human relations behavior	X_{39}	0.11	1	340	.74
Potency difference score	X_{40}	11.23	1	340	.00*
Social behavior difference score	X_{41}	3.77	1	340	.05
Human relations behavior difference score	X_{42}	0.06	1	340	.80

*significant at the .05 level or better

Table 7

Correlation Matrix

Variable	Vector No.	Aspiration Level: Total Sample N = 342 r	Males N = 79 r	Females N = 263 r
Sex	2	.36**	--	--
Marital status	3	.00	.08	-.09
	4	-.08	-.11	-.04
	5	.04	.03	.09
	6	.02	-.14	.09
Children or future plans for children	7	.15**	.14	-.07
	8	.06	.01	.11
	9	-.14**	-.04	-.13*
	10	-.01	-.12	.05
Position in family	11	.03	.10	-.02
	12	-.04	.02	-.07
	13	-.01	.01	-.04
Level of teaching	14	-.13*	.33**	-.10
	15	.13*	-.02	.05
School system	16	.01	.03	.00
	17	.02	-.19	.09
	18	.02	.21	-.04
Educational attainment and future educational plans	19	-.23**	-.28**	-.21**
	20	-.01	[illegible]	.03
	21	.18**	.28[illegible]	.04
	22	-.18**	-.14	-.17**
	23	.09	.04	.14*
	24	.22**	.23*	.17**
	25	.19**	.01	.24**
	26	.50**	.62**	.25**
Years of experience	27	.07	-.02	.13*
Role preference	28	.32**	.10	.36**

*significant at the .05 level
**significant at the .01 level

Table 7 (continued)

Variable	Vector No.	Aspiration Level: Total Sample N = 342 r	Males N = 79 r	Females N = 263 r
Time commitment to career	29	.30**	.14	.32**
Commitment to teaching	30	.12*	-.06	.18**
Expectancy of support	31	.15**	.27*	.05
Perceived likelihood of recruitment	32	.48**	.45**	.39**
Achievement motivation	33	.17**	-.05	.26**
Factor scores on concept "MYSELF"				
potency	34	.34**	.13	.33**
social behavior	35	-.06	.08	.03
human relations behavior	36	.07	.28**	.14*
Factor scores on concept "EDUCATIONAL ADMINISTRATOR"				
human relations behavior	37	.02	.12	-.01
potency	38	.03	.20	-.01
social behavior	39	.07	.12	.07
Potency difference score	40	.18**	-.10	.21**
Social behavior difference score	41	-.10	-.05	-.05
Human relations behavior difference score	42	.01	.04	.06

*significant at the .05 level
**significant at the .01 level

The null hypothesis was accepted for the predictor variables: marital status; position in family; years of experience; social behavior factor score and human relations factor score on concept "MYSELF"; potency factor score, social behavior factor score, and human relations behavior factor score on concept "EDUCATIONAL ADMINISTRATOR"; social behavior factor difference score and human relations behavior factor difference score between the two concepts. This indicates no significant predictive value. (See Table 6.)

In addition, the null hypothesis was accepted for the variable involving the school system employing each of the teacher subjects. This indicates that knowledge of the system was not significant for prediction of aspiration level.

Testing Hypothesis 2

The second hypothesis was tested using the technique outlined by Skvarcius and Cromer (1971) which essentially examined "the interaction between the R squares." According to Skvarcius and Cromer: "Such a difference indicates a difference between the coefficients (b_1 and b_2) of the predictor variables," for two regression equations generated separately for the two data sources.

$$X_{1_{males}} = a_1 + b_1 X_{28} + E_1$$

$$X_{1_{females}} = a_2 + b_2 X_{28} + E_2$$

The method of testing (for example the interaction between sex (X_2) and role preference (X_{28}) involves utilizing the full model

$$X_1 = a_0 + a_1 X_2 + a_3 X_{28} + a_4 (X_2 \cdot X_{28}) + E_3$$

and the restricted model

$$X_1 = b_0 + b_1X_2 + b_3X_{28} + E_4$$

and testing to determine if the removal of (X_2 . X_{28}) results in a significantly altered predictive value for the model. This test depends on the F ratio which is a function of the error terms E_3 and E_4.

The significance level for the study was set at .05. For the equations given in the example, a significant finding would have indicated an interaction between sex and role preference and, therefore, a difference in predictive influence for males and females of this predictor variable. All continuous predictor variables were treated in an identical manner.

The categorical predictor variables were tested for significant interactions with sex utilizing a two-way analysis of variance.

The null hypothesis was rejected for the variables: level of teaching assignment, commitment to teaching, expectancy of support, achievement motivation, potency factor score on concept "EDUCATIONAL ADMINISTRATOR," potency factor difference score. (See Table 8) This indicates a significant difference between the predictor variable's influence in predicting aspiration level for males. Table 9 presents the product moment correlation coefficients between the significant variables and aspiration level for males and for females. Calculation of Fisher's z indicates significant differences between the correlation coefficients for females and males for three of the variables with aspiration level: the categorical teacher of elementary school variable at the .01 level; the achievement motivation variable at the .05 level; the potency factor difference score at the .05 level.

The data indicate that being an elementary school teacher, and having a relatively high expectancy of support and concept of the potency of an

Table 8

Significance of Interactions with Sex in Predicting Aspiration Level

Interaction Between	F-Statistic	Df1	Df2	Probability
Sex and marital status	1.23	4	332	0.30
" " children/future plans	1.42	4	332	0.23
" " position in family	0.60	3	334	0.62
" " level of teaching	11.34	2	336	0.00*
" " school system	2.40	3	334	0.07
" " educational attainment/future plans	1.78	7	325	0.09
" " years of experience	0.48	4	333	0.75
" " role preference	1.44	1	338	0.23
" " time commitment to career	0.50	1	338	0.48
" " commitment to teaching	4.07	1	338	0.04*
" " expectancy of support	5.33	1	338	0.02*
" " likelihood of recruitment	0.71	1	338	0.40
" " achievement motivation	6.60	1	338	0.01*
" " potency - "SELF"	0.55	1	338	0.46
" " social behavior - "SELF"	0.29	1	338	0.59
" " human relations behavior - "SELF"	3.03	1	338	0.08
" " potency - "EDUCATIONAL ADMINISTRATOR"	4.29	1	338	0.04*
" " social behavior - "EDUCATIONAL ADMIN."	0.60	1	338	0.44
" " human relations behavior - "ED. ADMIN."	1.67	1	338	0.20
" " potency difference	5.18	1	338	0.02*
" " social behavior difference	0.06	1	338	0.81
" " human relations behavior difference	0.00	1	338	0.95

*significant at the .05 level or better

Table 9

Product Moment Correlation Coefficients for Males and Females between Aspiration Level and Variables Whose Interactions with Sex Are Significantly Predictive of Aspiration Level

Variable	Aspiration Level r (Males)	Aspiration Level r (Females)
Teaching Level		
Elementary	.33**	-.10
Junior High	-.02	.05
Commitment to teaching	-.06	.18**
Expectancy of support	.27*	.05
Achievement motivation	-.05	.26**
Potency factor score on concept "EDUCATIONAL ADMINISTRATOR"	.20	-.01
Potency factor difference score	-.10	.21**

*significant at the .05 level

**significant at the .01 level

"EDUCATIONAL ADMINISTRATOR" is significantly more predictive of aspiration level for males than for females. Similarly, having a relatively high commitment to teaching, achievement motivation, and potency difference score is significantly more predictive of aspiration level for females than for males.

The null hypothesis was accepted for all other predictor variables, indicating that the influence or lack of influence of these variables in predicting aspiration level is the same for females and males. (See Table 8.)

Testing Hypothesis 3

To evaluate the third research question and test its corresponding null hypothesis the same procedure was utilized as that outlined for the second null hypothesis which examined the interaction effects between sex and the other predictor variables. In this case, the models were tested for significant interactions between general achievement motivation and each of the predictor variables listed in the third null hypothesis. Again, the level for significance was set at .05. The null hypothesis was accepted for all the predictor variables tested indicating no interactive effect between these predictors and achievement motivation. (See Table 10.)

Testing Hypothesis 4

The fourth hypothesis was tested by extracting the vector $(X_{30} \cdot X_{30})$ from the equation $X_1 = a_0U + a_2X_{30} + a_3 (X_{30} \cdot X_{30}) + E_1$, and assessing its effect on prediction. X_{30} is the vector CT. The restricted model was: $X_1 = a_0U + a_2X_{30} + E_2$ where E_2 is the new error term. A probability of less than .05 was chosen as the criteria for rejecting the null hypothesis. The null hypothesis was accepted indicating no significant curvilinear relationship between commitment to teaching and aspiration level. (See Table 10.)

Table 10

Significance of Interactions with Achievement Motivation and Commitment to Teaching in Predicting Aspiration Level

Interaction Between	F-Statistic	Df1	Df2	Probability
Gen Ach Mot and RP	1.51	1	338	0.22
Gen Ach Mot and TCC	0.01	1	338	0.92
Gen Ach Mot and CT	1.49	1	338	0.22
Gen Ach Mot and ES	1.05	1	338	0.31
Gen Ach Mot and LR	0.29	1	338	0.59
CT and CT (CT^2)	0.04	1	338	0.84

Final Linear Model

All variables and interactions testing significantly on hypotheses 1 through 4 were entered into a linear model regression equation for the purpose of determining the most predictive variables. A series of regression equations was run with the successive elimination of those variables and interactions not significantly contributing to prediction in light of the remaining predictors. It is important to note that a variable or interaction which was significantly predictive of aspiration level when tested against the unit vector or in a limited model could be a non-significant predictor in a regression equation containing variables which were accounting for the same portion of the variance. This means that in the final model reported below, many variables were eliminated because of their high correlation with another variable also significantly predictive of aspiration level. For example, role preference (RP) and time commitment to career (TCC) are significantly correlated with each other ($r = .73$) and account for approximately the same variance. Therefore, only the variable most significant when tested without the presence of the other was included, which, in this case, was RP. The final model was as follows:

$$X_1 + a_0U + a_1X_2 + a_3X_{19} + a_4X_{20} + a_5X_{21} + a_6X_{22} + a_7X_{23} + a_8X_{24} + a_9X_{25} + a_{10}X_{26} + a_{11}X_{28} + a_{12}X_{32} + a_{13}X_{33} + a_{14}X_{34} + a_{15}(X_2 \cdot X_{33}) + E_1$$

which includes the variables: sex (X_2), educational attainment plus future educational plans (X_{19} through X_{26}), RP (X_{28}), LR (X_{32}), Gen Ach Mot (X_{33}), Potency-Self (X_{34}), the interaction between sex and achievement motivation ($X_2 \cdot X_{33}$).

This regression equation (containing 14 predictor vectors representing 7 variables) produces a multiple correlation of 0.700, accounting for 49.0% of the variance, and an error mean square of 1.82, as opposed to Model A containing all 44 of the original predictor vectors which produced a multiple correlation of 0.735, accounting for 54.1% of the variance and an error mean square of 1.80 and to Model B containing 30 vectors representing 19 variables and interactions testing significantly on hypotheses 1 through 4, which produced a multiple correlation of 0.712, accounting for 50.6% of the variance, and an error mean square of 1.85. The final Model C not only has approximately the same error mean square, but accomplishes this with 30 less vectors than Model A and 16 less vectors than Model B, producing a much more efficient "best" model. The regression equation for final Model C with regression weights is as follows:

$$X_1 = -1.956\ U + 2.543\ X_2 - 0.172\ X_{19} + 0.512\ X_{20} + 1.215\ X_{21} + 0.145\ X_{22} + 0.802\ X_{23} + 1.705\ X_{24} + 1.413\ X_{25} + 2.526\ X_{26} + 0.231\ X_{28} + 0.297\ X_{32} + 0.009\ X_{33} + 0.019\ X_{34} - 0.016\ (X_2 \cdot X_{33})$$

The full Model C was restricted for each predictor variable and these restricted models were tested against the full model to ascertain the significance of each variable in predicting aspiration level in the context of the total regression model (in the presence of the other predictors.) The results are presented in Table 11. These variables taken together produce the "best" predictive model.

Testing Hypothesis 5

To test the fifth null hypothesis, a one-way analysis of variance was performed for the relevant continuous variables on the groups -- M and F, El. and Sec. A probability of less than .05 was chosen as the criteria for

rejecting the null hypothesis for each continuous predictor variable. A χ^2 was performed on the relevant categorical variables on the groups -- M and F, El. and Sec. -- with the same criteria for rejection.

These analyses on those variables significantly correlated with aspiration level presented in Tables 12 and 13 provide the following information: males score significantly higher on the measure of AL, and on some variables positively correlated with AL --- RP, TCC, ES, LR, and Potency-Self; males have a significantly higher representation in the categories positively correlated with aspiration (parent of preschool children, BA with future plans for PhD, plans for studying administration) and have a significantly lower representation in the category negatively correlated with aspiration level (those teachers expecting to have children in the future); females score significantly lower on the potency difference factor, but, because of the way these scores were calculated, this indicates a greater discrepancy in role concepts and is negatively correlated with aspiration level. The null hypothesis was therefore rejected for differences between males and females for all the variables except Gen Ach Mot, CT, and the categorical vectors --- BA plus future credits and BA with no future plans. There were no significant differences at the .05 level between males and females on these variables.

The following results were derived for elementary and secondary teachers: secondary school teachers score significantly higher on the measure of AL and on some variables positively correlated with aspiration level --- RP, TCC, Gen Ach Mot, Potency-Self, and Potency Difference (meaning greater proximity between concept of "SELF" and concept of "EDUCATIONAL ADMINISTRATOR"); secondary teachers have a significantly higher representation in the categories positively correlated with aspiration level (parent of preschool children, MA with future plans for an additional MA, MA with future plans for a PhD) and have a significantly lower representation in the categories negatively cor-e

Table 12

One-Way Analysis of Variance on Relevant Continuous Variables

I. One-Way Analysis of Variance of Level of Aspiration

A. Groups: Males, Females

Source	Df	Sum of Squares	Mean Square	F
Between	1	154.299	154.299	51.83**
Within	340	1012.181	2.977	

B. Groups: Elementary, Secondary

Source	Df	Sum of Squares	Mean Square	F
Between	1	20.585	20.585	6.11*
Within	340	1145.894	3.370	

C. Groups: Male Elementary, Female Elementary

Source	Df	Sum of Squares	Mean Square	F
Between	1	148.382	148.382	55.74**
Within	198	527.118	2.662	

D. Groups: Male Secondary, Female Secondary

Source	Df	Sum of Squares	Mean Square	F
Between	1	32.212	32.212	10.29**
Within	140	438.183	3.130	

*significant at the .05 level
**significant at the .01 level

Table 12 (continued)

II. One-Way Analysis of Variance of Role Preference

A. Groups: Males, Females

Source	Df	Sum of Squares	Mean Square	F
Between	1	4.461	4.461	7.53**
Within	340	201.528	0.593	

B. Groups: Elementary, Secondary

Source	Df	Sum of Squares	Mean Square	F
Between	1	5.225	5.225	8.85**
Within	340	200.763	0.590	

C. Groups: Male Elementary, Female Elementary

Source	Df	Sum of Squares	Mean Square	F
Between	1	2.974	2.974	4.65*
Within	198	126.606	0.639	

D. Groups: Male Secondary, Female Secondary

Source	Df	Sum of Squares	Mean Square	F
Between	1	0.167	0.167	0.33
Within	140	71.016	0.507	

*significant at the .05 level
**significant at the .01 level

Table 12 (continued)

III. One-Way Analysis of Variance of Time Commitment to Career

A. Groups: Males, Females

Source	Df	Sum of Squares	Mean Square	F
Between	1	1503.620	1503.620	7.69**
Within	340	66439.248	195.410	

B. Groups: Elementary, Secondary

Source	Df	Sum of Squares	Mean Square	F
Between	1	1650.461	1650.461	8.46**
Within	340	66292.407	194.978	

C. Groups: Male Elementary, Female Elementary

Source	Df	Sum of Squares	Mean Square	F
Between	1	1043.525	1043.525	5.29*
Within	198	39039.495	197.169	

D. Groups: Male Secondary, Female Secondary

Source	Df	Sum of Squares	Mean Square	F
Between	1	60.236	60.236	0.32
Within	140	26149.151	186.780	

*significant at the .05 level
**significant at the .01 level

Table 12 (continued)

IV. One-Way Analysis of Variance of Commitment to Teaching

A. Groups: Males, Females

Source	Df	Sum of Squares	Mean Square	F
Between	1	2.445	2.445	0.93
Within	340	893.508	2.628	

B. Groups: Elementary, Secondary

Source	Df	Sum of Squares	Mean Square	F
Between	1	7.800	7.800	2.99
Within	340	888.153	2.612	

C. Groups: Male Elementary, Female Elementary

Source	Df	Sum of Squares	Mean Square	F
Between	1	2.140	2.140	0.83
Within	198	509.140	2.571	

D. Groups: Male Secondary, Female Secondary

Source	Df	Sum of Squares	Mean Square	F
Between	1	2.575	2.575	0.96
Within	140	374.299	2.674	

Table 12 (continued)

V. One-Way Analysis of Variance of Expectancy of Support

A. Groups: Males, Females

Source	Df	Sum of Squares	Mean Square	F
Between	1	19.258	19.258	6.00*
Within	340	1091.397	3.210	

B. Groups: Elementary, Secondary

Source	Df	Sum of Squares	Mean Square	F
Between	1	5.916	5.916	1.82
Within	340	1104.739	3.249	

C. Groups: Male Elementary, Female Elementary

Source	Df	Sum of Squares	Mean Square	F
Between	1	21.808	21.808	6.47*
Within	198	667.692	3.372	

D. Groups: Male Secondary, Female Secondary

Source	Df	Sum of Squares	Mean Square	F
Between	1	14.980	14.980	5.24*
Within	140	400.259	2.859	

*significant at the .05 level

Table 12 (continued)

VI. One-Way Analysis of Variance of Perceived Likelihood of Recruitment

A. Groups: Males, Females

Source	Df	Sum of Squares	Mean Square	F
Between	1	86.332	86.332	41.76**
Within	340	702.931	2.067	

B. Groups: Elementary, Secondary

Source	Df	Sum of Squares	Mean Square	F
Between	1	5.445	5.445	2.36
Within	340	783.819	2.305	

C. Groups: Male Elementary, Female Elementary

Source	Df	Sum of Squares	Mean Square	F
Between	1	76.678	76.678	40.37**
Within	198	376.042	1.899	

D. Groups: Male Secondary, Female Secondary

Source	Df	Sum of Squares	Mean Square	F
Between	1	25.454	25.454	11.66**
Within	140	305.645	2.183	

**significant at the .01 level

Table 12 (continued)

VII. One-Way Analysis of Variance of General Achievement Motivation

A. Groups: Males, Females

Source	Df	Sum of Squares	Mean Square	F
Between	1	430.868	430.868	1.22
Within	340	120025.448	353.016	

B. Groups: Elementary, Secondary

Source	Df	Sum of Squares	Mean Square	F
Between	1	4254.213	4254.213	12.45**
Within	340	116202.103	341.771	

C. Groups: Male Elementary, Female Elementary

Source	Df	Sum of Squares	Mean Square	F
Between	1	14.161	14.161	.04
Within	198	68317.794	345.039	

D. Groups: Male Secondary, Female Secondary

Source	Df	Sum of Squares	Mean Square	F
Between	1	87.806	87.806	0.26
Within	140	47782.342	341.302	

**significant at the .01 level

Table 12 (continued)

VIII. One-Way Analysis of Variance of Potency-Self Factor Score

A. Groups: Males, Females

Source	Df	Sum of Squares	Mean Square	F
Between	1	1096.149	1096.149	20.30**
Within	340	18358.462	53.995	

B. Groups: Elementary, Secondary

Source	Df	Sum of Squares	Mean Square	F
Between	1	798.821	798.821	14.56**
Within	340	18655.790	54.870	

C. Groups: Male Elementary, Female Elementary

Source	Df	Sum of Squares	Mean Square	F
Between	1	442.957	442.957	8.01**
Within	198	10951.023	55.308	

D. Groups: Male Secondary, Female Secondary

Source	Df	Sum of Squares	Mean Square	F
Between	1	209.675	209.675	4.16*
Within	140	7052.135	50.372	

*significant at the .05 level
**significant at the .01 level

Table 12 (continued)

IX. One-Way Analysis of Variance of Potency Difference Factor Score

A. Groups: Males, Females

Source	Df	Sum of Squares	Mean Square	F
Between	1	1514.024	1514.024	10.04**
Within	340	51259.871	150.764	

B. Groups: Elementary, Secondary

Source	Df	Sum of Squares	Mean Square	F
Between	1	2270.065	2270.065	15.28**
Within	340	50503.830	148.541	

C. Groups: Male Elementary, Female Elementary

Source	Df	Sum of Squares	Mean Square	F
Between	1	297.098	297.098	1.94
Within	198	30364.422	153.356	

D. Groups: Male Secondary, Female Secondary

Source	Df	Sum of Squares	Mean Square	F
Between	1	212.972	212.972	1.52
Within	140	19629.337	140.210	

**significant at the .01 level

Table 13

χ^2 Analysis on Relevant Categorical Vectors

Variable	Difference between Females & Males χ^2	Difference between Elementary & Secondary χ^2
Children or Future Plans for Children		
X_7 - Parent of pre-school children	39.90**	10.05**
X_9 - Expecting to have children in future	5.25*	7.50**
Education Plus Future Plans		
X_{19} - BA plus future credits	1.67	5.09*
X_{21} - BA plus future PhD	6.33*	0.95
X_{22} - BA with no future plans	2.48	3.05
X_{24} - MA plus future additional MA	4.90*	4.09*
X_{25} - MA plus future PhD	9.60**	12.37**
X_2 - plans to study administration	42.30**	.00

*significant at the .05 level
**significant at the .01 level
For a $df_2 = 1$, a $\chi^2 = 6.64$ is required for significance at the .01 level and a $\chi^2 = 3.84$ is required for significance at the .05 level.

related with aspiration level (those teachers expecting to have children in the future, BA with plans for obtaining future credits). The null hypothesis was therefore rejected for differences between elementary and secondary teachers for all the variables except ES, LR, CT, and the categorical vectors --- BA with plans for future PhD, BA with no future plans, plans to study administration. There were no significant differences at the .05 level between elementary and secondary teachers on these variables.

In addition, a further analysis of the continuous variables (Table 12) reveals no significant differences between female and male elementary teachers on CT, Gen Ach Mot, or potency difference and no significant difference between male and female secondary teachers on RP, TCC, CT, Gen Ach Mot, or potency difference.

Testing for Role Congruence

(Hypothesis 5 continued)

The congruence between concept of self and concept of educational administrator was measured on three factors (potency, social behavior, human relations behavior) by calculating difference scores on these factors. The raw score means for males and females are presented in Table 14. The greater the distance from 0 indicated, the greater the discrepancy between concepts. As can be noted from the data, males exhibit a lower discrepancy and therefore a higher role congruence than do females on all three factors. An analysis of variance was performed to ascertain the significance of these differences and the results are shown in Table 15.

Male teachers exhibit a concept of self significantly closer to their concept of educational administrator than do female teachers in terms of potency, social behavior, and human relations behavior. However, only

Table 14

Means on Role Congruence Measures for Males and Females

Measures of Role Congruence	Mean for Males	Mean for Females
Potency Difference	0.02	-0.48
Social Behavior Difference	0.41	0.86
Human Relations Behavior Difference	0.53	0.88

Table 15

One-Way Analysis of Variance of Measures of Role Congruence for Males and Females

A. Potency Difference

Source	Df	Sum of Squares	Mean Square	F
Between	1	1514.024	1514.024	10.04**
Within	340	51259.871	150.764	

B. Social Behavior Difference

Source	Df	Sum of Squares	Mean Square	F
Between	1	1196.932	1196.932	9.26**
Within	340	43953.620	129.275	

C. Human Relations Behavior Difference

Source	Df	Sum of Squares	Mean Square	F
Between	1	781.724	781.724	4.03*
Within	340	65994.229	194.101	

*significant at the .05 level
**significant at the .01 level

potency difference was a significant predictor of aspiration level. In addition, this variable was more predictive for females than for males. For female teachers, the greater the role congruence on the potency factor the higher the level of aspiration toward administration.

It is also interesting to note that, on all factor scores for concept "MYSELF", there were significant (at the .01 level) differences between males and females, indicating that these factors derived from the semantic differential (potency, social behavior, and human relations behavior) have the capacity to differentiate the concepts of "maleness" and "femaleness" prevalent in our society. Females rate themselves significantly lower on the potency factor and significantly higher on the social behavior and human relations behavior factors than do males.

DATA INTERPRETATION

The data collected for this study on levels of aspiration toward educational administration among women and men teachers confirm the previously completed research of Parlato (1967) and Barter (1959) regarding lower aspiration levels among women. Men scored significantly higher on ($p < .01$) aspiration toward administration.

An analysis of these data reveals that 35.4% of all male teachers responding rated themselves 5 or above on the 7-point scale designed to measure level of aspiration, while only 9.5% of all female teachers responding indicated these levels. On a percentage point basis, there is a ratio of 3.7 to 1, males to females, aspiring at this level to educational administration. This ratio is far lower, with the exception of elementary principals, than any ratio of males to females currently in administration (4 to 1 for elementary

principals, 49 to 1 for secondary principals, 999 to 1 for superintendents, 15 to 1 for associate superintendents, and 18 to 1 for assistant superintendents.) There is an indication, therefore, that lower aspiration levels (and the variables which are predictive of these levels discussed below) might not be the only factors relevant to the scarcity of women in administration. Apparently a greater ratio of women aspire to these roles than are indicated by their representation in this profession. Table 16 presents a breakdown by sex and level of percentages of teachers indicating aspiration levels of 5 or above. Two plausible interpretations of this finding are: women have shown a recent increase in aspiration due to changing social attitudes; school systems discriminate against women in their recruitment and hiring of administrators. Additional research is necessary to determine if either of these explanations is viable. However, Taylor's research (1971) and data from this study on expectancy of support and perceived likelihood of recruitment seem to indicate that women are not encouraged to seek administrative positions.

Personal Variables as Predictors

Fogarty, Rapoport, and Rapoport (1971) had reported that "the level of aspiration of married women, particularly those with children, falls more sharply than that of single women." The relationship of marital status to aspiration level was not confirmed by this study of teachers. However, the variable, children or future plans for children, was a significant predictor ($p < .05$). In particular, being a parent of preschool children was predictive of aspiration level, but only 3% of the women as compared to 24% of the men fell in this category (a significant difference, $p < .01$). It is

Table 16

Breakdown of Aspiration Level (5 or above)

by Sex and Level

	% males of all males responding at level indicated	% females of all females responding at level indicated
Elementary	66.7%	8.8%
Secondary	26.2%	11.1%
Elementary and Secondary	35.4%	9.5%

probably correct to assume that most women teachers with preschool children have left, at least temporarily, the educational profession. In addition, expecting to have children in the future was negatively related to prediction of aspiration, particularly for women. Also 72% of the female sample fell into this category as compared to 58% of the male sample (a significant difference, $p < .05$). For women, therefore, having young children, or expecting to have children in the future, is significantly related to lower aspiration levels.

Hennig's (1970) findings relating position in family to success in business for women suggested that perhaps position in family would be predictive for teachers of aspiration level toward administration. This was not confirmed at the .05 level of probability.

Level of teaching was significantly ($p < .01$) more predictive of aspiration level for men than for women. Men teaching at the elementary level exhibited extremely high aspiration levels (66.7% of them rated aspirations at 5 or above on a 7-point scale.)

Career-related and Motivational Variables as Predictors

Role preference (RP) and time commitment to career (TCC) were significantly ($p < .01$) predictive of aspiration level. In addition, there were significant differences ($p < .01$) between males and females on both these variables. However, when this was broken down by level, there were no significant differences (at the .05 level) between male and female secondary teachers on RP or TCC, only between elementary female teachers and elementary male teachers.

According to Simpson and Simpson (1969): "The culture defines woman's responsibility to home and family as her primary one." It was hypothesized

that women teachers would reflect this cultural bias in lower career role preference and projected time commitments to career. This was confirmed only for teachers at the elementary level. Evidently, at the secondary level, career commitment variables were not a determining factor in aspiration level discrepancies. However, at the secondary level, in spite of no significant differences between males and females in RP and TCC, and the fact that 11.1% of the women teachers indicated aspiration levels toward administration of 5 or above (on a 7-point scale), women hold only 2.0% of the secondary principalships.

It had been hypothesized that, because teaching is viewed as an appropriate "female" career, women teachers would express greater levels of commitment to teaching as a long-term career than would men and that the relationship between commitment to teaching and aspiration level would be curvilinear. Neither of these hypotheses was confirmed at the .05 level of probability. However, commitment to teaching did exhibit a linear relationship to aspiration level and was significantly predictive ($p < .05$) of aspirations toward administration. In addition, CT was significantly more positively predictive ($p < .05$) for females than for males.

Achievement motivation had been hypothesized as a significant predictor with no differences in motivation between males and females. This was confirmed. However, it had been expected that achievement motivation would be a more influential predictor of aspiration level for males than for females due to the intervention for women of the motive to avoid success in a "masculine profession." This was not confirmed. There was a significant interaction ($p < .01$) between sex and achievement motivation, but it was the women who exhibited the high correlation between achievement motivation and aspiration level ($r = .26$, significant at the .01 level). Evidently, there are

women not avoiding success in a male-oriented profession as evidenced by aspiration level for whom achievement motivation is a significant predictor of aspirations. Degree of achievement motivation was not a factor in determining level of aspiration for men. There was no significant correlation between these two variables for the male sample ($r = -.05$).

Neither years of experience nor system of employment was significant (at the .05 level) as a predictor of aspiration level. The fact that aspiration levels did not vary significantly among the four systems studied implies that, in spite of the non-random selection of the sample systems, the results are somewhat generalizable.

Burns (1964) indicated that a factor relating to the scarcity of women in educational administration was their unwillingness to continue graduate study. This was confirmed. Men significantly ($p < .05$) more often planned to seek a doctorate or an additional master's (30.4% of the males, 9.1% of the females), and/or to study administration (20.3% of the males, 1.1% of the females). Education plus future educational plans was significantly ($p < .01$) predictive of aspiration level. Therefore, for women teachers, the lack of planning to attain doctorates, additional master's degrees, or to study educational administration was significantly related to lower aspiration levels.

Perceptual Variables as Predictors

Both expeccancy of support (ES) and perceived likelihood of recruitment (LR) were significantly ($p < .01$) predictive of aspiration level. There were significant differences at the .01 level for LR and at the .05 level for ES between males and females on these variables as well as a significant interaction ($p < .05$) between sex and expectancy of support, indicating that ES was more predictive of aspiration level for males than for females.

It had been hypothesized that women would exhibit lower expectations for support and for recruitment than would men due to the scarcity of female role models and the evidence reported by Taylor (1973) indicating that "half of the school systems studied did not encourage women to train or apply for administrative positions". These hypotheses were confirmed.

Analysis of the LR variable indicates that 19.0% of the men perceived the likelihood of their being recruited into administration at 5 or above on a 7-point scale as compared to 4.9% of the women.

Another perceptual variable significantly predictive ($p < .01$) of aspiration level is concept of one's own potency, as indicated by the Potency-Self factor score on the semantic differential. Again, there were significant differences ($p < .01$) between males and females, with the male teachers showing higher levels on the Potency-Self scores. This indicates higher ratings toward the second term of the adjective pairs loaded on the potency factor (submissive - dominant, weak - strong, mild - forceful, timid - bold, fearful - fearless, helpless - powerful, static - dynamic, languid - vigorous, delicate - rugged, unimportant - important). As defined by these terms, men rate themselves significantly higher on potency than do females, and this concept of potency is significantly related to aspirations toward administration.

Super's (1963) theory of career development suggests that

> In expressing a vocational preference, a person puts into occupational terminology his idea of the kind of person he is; that, in entering an occupation, he seeks to implement a concept of himself.

Based on this premise, it had been hypothesized that those teachers exhibiting greater congruence between self and the role of the educational administrator would aspire higher to administration. Congruence was measured on three factors, potency, social behavior, and human relations behavior, as

described in Chapter IV. All three factor difference scores have sex-role implications as evidenced by the significant ($p < .01$) difference between males and females on the potency difference and social behavior difference scores and by the significant ($p < .05$) difference on the human relations behavior score. The hypothesis was confirmed only for self-role congruence as measured by potency difference. Although men showed significantly greater congruence between concept of self and concept of educational administrator on all three factors, only the potency difference factor was significantly predictive ($p < .01$) of aspiration level. Individuals exhibiting a greater congruence between concept of self-potency and concept of educational administrator potency were more highly aspirant toward educational administration. In addition, this congruence was significantly more predictive ($p < .05$) for women than for men. It was apparently more important to the level of aspiration for women to see themselves as possessing the strengths and potencies befitting their concept of the educational administrator than for men.

IMPLICATIONS FOR EFFECTING CHANGE

This study was designed in an effort to isolate certain factors influential in predicting aspiration level, with the hope that this knowledge would lead to techniques and recruiting methods designed to alter the existing scarcity of women in administrative roles.

It is evident that women exhibit lower levels of aspiration toward administration. This appears to be due in large part to: home-career conflict (as evidenced in lower career role preference and lower projected time commitments to career) for female elementary teachers only; to lack of planning for attainment of higher degrees; to lower expectancies for support and for recruitment from present administrators; to a lower concept of self-potency;

and to a greater discrepancy between self and role of the educational administrator in terms of potency.

It is also evident, however: that the ratio of women exhibiting high aspiration levels toward administration is much higher than the ratio of women now represented in the administrative ranks; that women teachers exhibit achievement motivation levels equivalent to men teachers; that women who aspire to administration are those high in achievement motivation (not true for men) indicating that there are highly motivated women in education who do aspire to the educational administration profession.

Therefore, it is recommended from the evidence in this research study that school personnel directors:

- carefully review their system's administrative hiring and recruitment policies for discriminatory practices that might have led to the observed lower expectancy levels among women for support and recruitment;
- develop programs aimed at asserting the appropriateness of the administrative role for women;
- identify and actively encourage capable women to seek higher degrees, particularly in educational administration, and to apply for administrative positions.

The above recommendations are made on the assumption that school systems are anxious to increase the pool of administrative talent available to them as well as to prove the good faith of the educational administration profession in providing equal opportunity and access to its ranks.

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